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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WALLACE, SCOTT A

ART UNIT

PAPER NUMBER

2671

DATE MAILED: 02/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/552,857

Applicant(s)

WHALEY, JEFFREY ALLEN

Examiner

Scott Wallace

Art Unit

2671

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the logic units with the two sets of connections as disclosed in claim 1 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-14, 18-21 and 24-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Rohner, U.S. Patent No. 6,064,392.

4. As per claim 1, Rohner discloses an apparatus for optimizing processing of graphics data, the apparatus comprising: a plurality of logic units (fig 1), wherein the plurality of logic units are used to perform a graphics operation in which a set of constants is required for the graphics operation (column 4 lines 5-11); a first set of connections connecting the plurality of logic units to each other, wherein the first set of connections are used to configure the plurality of logic units to determine the set of constants (fig 1 and column 2 lines 55-60); a second set of connections connecting the plurality of logic units (column 5 lines 14-20), wherein the second set of connections (to the lookup table) configure the plurality of logic

Art Unit: 2671

units to perform the graphics operation in which the graphics operation using the constants is determined through the first set of connections (column 5 lines 14-20).

5. As per claim 2, Rohner discloses wherein the first set of connections and the second set of connections include common connections (fig 2, Z*K1).

6. As per claim 3, Rohner discloses wherein the graphics operation is a generation of a fog factor (column 1 lines 4-6).

7. As per claim 4, Rohner discloses wherein the graphics operation is a viewport transformation (column 2 lines 60-63).

8. As per claim 5, Rohner discloses wherein the constants are stored in a memory (fig 1 #'s 108 and 110 and column 3 lines 65-67).

9. As per claim 6, Rohner discloses wherein the constants are stored in a set of registers (column 3 lines 65-67).

10. As per claim 7, Rohner discloses wherein the apparatus is a graphics adapter (column 3 lines 58-61).

11. As per claim 8, Rohner discloses a storage unit, wherein the set of constants are stored in the storage unit such that redetermination of the set of constants for subsequent graphics operations is unnecessary until the set of constants change (column 4 lines 4-11).

12. As per claim 9, Rohner discloses wherein the storage is a set of registers (column 3 lines 65-67).

13. As per claim 10, Rohner discloses a graphics pipeline comprising: an input (fig 1 #106), wherein the input receives graphics data (fig 1 # 106); an output (column 4 lines 40-43), wherein the output transmits processed graphics data (column 4 lines 40-43); and a plurality of stages (visibility logic, fog mixer etc.), wherein a first stage within the plurality of stages is connected to the input (visibility logic) and a last stage within the plurality of stages is connected to the output (fog mixer), wherein a selected stage within the plurality of stages includes a plurality of modes of operation including: a first mode of operation in which the selected stage is configured to determine constants for use in performing a graphics operation (fig 3 # 300 and 302); and a second mode of operation in which the selected stage is configured to perform the graphics operation using the constants (fig 3 # 306 and 310).

Art Unit: 2671

14. As per claim 11, Rohner discloses wherein the constants are stored in a storage device (column 3 lines 65-67).
15. As per claim 12, Rohner discloses wherein the storage device is a set of registers (column 3 lines 65-67).
16. As per claim 13, Rohner discloses wherein the selected stage is a fog factor generation unit (column 4 lines 40-43).
17. As per claim 14, Rohner discloses wherein the selected stage is a viewport transformation unit (column 2 lines 60-64).
18. As per claim 18, Rohner discloses wherein the selected stage includes comprising: a storage unit, wherein the constants determined in the first mode of operation are stored in the storage unit such that redetermination of the constants for subsequent performance of the graphics operation is unnecessary until the set of constants change (column 4 lines 4-11).
19. As per claims 19, 24 and 27, Rohner discloses a method for optimizing graphics processing functions in a data processing system, the method comprising: identifying a variable from a set of variables for an equation (K1), wherein an operation using the equation is to be implemented in a processing element and wherein the variable remains constant for a period of time (column 4 lines 5-11); reducing the set of variables by the variables in the equation to form a simplified equation (column 3 lines 13-25), wherein the variable is treated as a constant (Zns); and selecting a set of logic elements for the processing element, wherein the logic elements are used to both determine the constant and to perform the operation using the simplified equation (visibility logic unit).
20. As per claims 20 and 25, Rohner discloses wherein the operation is a generation of a fog factor (column 1 lines 4-7).
21. As per claims 21 and 26, Rohner discloses wherein the operation is a viewport transformation (column 2 lines 60-65).

Claim Rejections - 35 USC § 103

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

23. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rohner in view of Fischer et al., U.S. Patent No. 5,392,392.

24. As per claim 15, Rohner discloses the limitations of claim 10 as seen above. However, Rohner does not specifically disclose wherein the output is connected to the raster engine. This is disclosed in Fischer et al in column 10 lines 32-46. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a raster engine as disclosed in Fischer et al with the system of Rohner because both systems deal with producing graphics with effects (column 1 lines 15-31) and a raster engine was well known to needed for displaying the graphics, therefore it would have been obvious for Rohner to add a raster engine to be able to display the graphics.

25. As per claim 16, Fischer et al discloses wherein the input is connected to the raster engine (column 10 lines 32-46).

26. As per claim 17, Fischer et al discloses wherein the input and the output are located in a raster interface unit (column 10 lines 32-46).

27. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rohner in view of Bowen et al, U.S. Patent No. 5,404,448.

28. As per claim 22, Rohner discloses an input configured to receive graphics data (fig 1 #106); a geometry engine wherein the geometry engine receives graphics data, processes the graphics data to form the processed graphics data, wherein the geometry engine includes a set of processing elements in which at least one processing element within the set of processing elements includes a set of logic units,

Art Unit: 2671

in which the set of logic units is used to perform an operation on the graphics data using an equation and wherein a portion of the set of logic units is used to determine at least one constant for the equation used in the operation (column 4 lines 1-20). However, Rohner does not specifically mention frame buffers with raster engine. This is disclosed in Bowen et al in column 8 lines 54-68 and column 9 lines 1-20. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use frame buffer with the system of Rohner because Rohner does describe updated frames (column 4 lines 29-35) therefore a frame buffer would have been required to store the frames.

29. As per claim 23, Rohner discloses wherein the at least one processing element includes a storage to store the constant determined by the portion of the set of logic units such that redetermination of the at least one constant for additional operations on other graphics data is unnecessary until the at least one constant changes (column 4 lines 4-11).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Scott Wallace** whose telephone number is **703-605-5163**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Mark Zimmerman**, can be reached at 703-305-9798.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA,
Sixth Floor (Receptionist).

Art Unit: 2671

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

A handwritten signature in black ink, appearing to read "Mark Zimmerman", with a long horizontal flourish extending to the right.

MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600